
PR24

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A3-04 ENHANCEMENT CASE WN - WINEP LONG TERM ENVIRONMENTAL DESTINATION

NES17



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1. INTRODUCTION

This business case sets out the enhancement investment required for us to meet our environmental obligations associated with the Water Resources Regional Plan Long-term Environmental Destination (EDWRMP) WINEP driver. The environmental destination (ED) driver is a new driver for PR24 and aims to verify the EDWRMP scenarios and abstraction licence reductions identified during AMP7 as part of the Water Resource Management Plan (WRMP24) for delivery in AMP8 and confirm their ability to meet environmental objectives at a local scale in light of future climate change. The ED driver, therefore, requires us to look further ahead than usual when considering climate change.

The EDWRMP scenarios were originally developed by the Environment Agency in the Meeting our Future Water Needs: A National Framework for Water Resources¹ ('National Framework') policy paper and translated by regional groups, Water Resources East (WRE) and Water Resources North (WReN), through their Regional Plans. They have been developed to deliver a step change in sustainable abstraction by 2050 to improve resilience to drought, climate change and the longer-term water needs of the environment. These scenarios indicate that nationally, an overall reduction in abstraction of between 1,200 and 2,200 million litres of water per day (Ml/d) may be needed, with existing supply options needing to be replaced by other means by 2050.

Meeting our obligations under the EDWRMP driver will require an investment of **£1.983m** across AMP8, in 2022 prices. The majority of this investment will be capital (£1.795m) with some operational spend (£0.188m) required.

¹ Northumbrian Water, Accessed: 30/03/23, [Meeting our future water needs: a national framework for water resources - GOV.UK \(www.gov.uk\)](https://www.gov.uk/government/policies/meeting-our-future-water-needs-a-national-framework-for-water-resources)

2. NEED FOR ENHANCEMENT INVESTMENT

2.1. ALIGNMENT WITH STATUTORY PLANNING FRAMEWORKS

a) *Is there evidence that the proposed enhancement investment is required? (includes alignment agreed strategic planning framework or environmental programme where relevant)*

The Environment Agency and Natural England translate legislation and UK government priorities set out in the Water Industry Strategic Environmental Requirement (WISER). WISER describes the legal obligations, government targets and statutory (S or S+) requirements water companies must achieve during each 5 yearly price review. It also sets out the non-statutory (NS) (with or without government support) requirements a water company should consider provided there is customer support for this action. WISER therefore underpins the government's Strategic Policy Statement² which specifies the government's priorities for the water industry and the framework and policy priorities within which Ofwat should operate.

The WINEP methodology enables water companies to develop, fund and implement sustainable solutions to address the WISER objectives. It does this by setting out the overarching process to design, develop, and deliver water company actions to protect and improve the environment.

Individual needs against WINEP drivers are assigned a shorthand driver code. The EDWRMP driver code, included within this business case, has been introduced in PR24 and allows for the delivery of actions for longer-term environmental requirements beyond existing statutory requirements of the Water Framework Directive³ (WFD) and protected area⁴ objectives⁵. The driver will help to meet our obligations under English legislation relating to regional planning around water resources and abstraction sustainability, which are summarised in Section 2.5.

The WINEP driver codes relevant to the EDWRMP driver and their alignment to Ofwat PR24 enhancement categories are outlined in Table 1. There are two suffix codes that can be added to the EDWRMP driver code to indicate the action (solution) required for the need: IMP (improvement) and INV (investigate). The INV driver code, shown in Table 1, is 'Statutory', meaning that action must be taken. The IMP code is 'Statutory+' which means the options to address needs under this code are subject to cost benefit assessment and will only be implemented if they are demonstrated to be cost beneficial. Our proposed solutions to meet the EDWRMP_IMP needs in AMP8 are considered cost beneficial and are therefore considered statutory as demonstrated through our AMP7 investigations.

² UK Government, February 2022: The government's strategic priorities for Ofwat. Policy Paper. Updated 28 March 2022. [February 2022: The government's strategic priorities for Ofwat - GOV.UK \(www.gov.uk\)](https://www.gov.uk/government/consultations/february-2022-the-government-s-strategic-priorities-for-ofwat) accessed 22 May 2023.

³ WINEP drivers related to WFD are included in our [Water - WINEP - Water Framework Directive](#) business case

⁴ WINEP drivers related to protected areas are included in our [Water - WINEP - Protected Areas and Biodiversity](#) business case

⁵ Environment Agency, 2022, PR24 WINEP driver guidance – Water Resources Regional Plan Long-term Environmental Destination

TABLE 1: STATUTORY WINEP DRIVER CODES RELEVANT TO THE WATER RESOURCES REGIONAL PLAN LONG-TERM ENVIRONMENTAL DESTINATION DRIVER NEEDS IN AMP8⁶

Driver Code	Description	Statutory / Statutory+	Tier 1 Outcome	Required by dates	PR24 Data Tables Enhancement Category
EDWRMP_INV	Actions identified within the WRMP to meet regional planning requirements that do not fit with WFD driver Requirements	Statutory	Water company contribution to protect and enhance the environment over the life of the regional plan	By December 31 2026, to help with PR24 planning	Investigations - survey, monitoring or simple modelling
EDWRMP_IMP	Investigations, options appraisals or feasibility studies for actions identified within the WRMP to meet regional planning requirements that do not fit with Water Framework Directive driver requirements	Statutory+	OR Water company contribution to reducing abstraction to meet outcome of regional plan	By March 31 2030, to be delivered in AMP8 or later AMP if required	WFD OR Biodiversity and conservation

2.2. OUR PROGRESS DURING AMP7

During AMP7, we invested time and resource (through base expenditure) into engaging with our Regional Water Resource Groups, WRE and WReN, to make sure that we meet the new requirement for our [Water Resource Management Plans](#) (WRMP) to be informed by regional planning. This work, especially the collaborative work on developing the long-term environmental destination scenarios for the regions in which we operate, provided the foundation on which our AMP8 investment will build.

2.2.1 Regional Plans

During AMP7, water resource planning groups WReN and WRE modelled the impact of future climate change on water resources at a regional level for our Northumbrian and Essex and Suffolk areas respectively. WReN and WRE modelled the ‘Enhanced’ EDWRMP scenario from the National Framework (the scenarios are set out in Section 2.5.1) and shared the outcomes with us and other impacted stakeholders for consideration in each of our WRMPs. The outcome shared with us was the need for a reduction in drinking water abstraction across all four of our Water Resource Zones (WRZ) in Essex and Suffolk with a total reduction of up to 84 MI/d depending on the EDWRMP scenario adopted. No reductions were identified for the Northumbrian region.

As WRE adopted the ‘Business as Usual Plus’ (BAU+) EDWRMP scenario into their regional plans, we have considered outcomes of their BAU+ modelling alongside our local environmental objectives during development of our WRMP24. This is summarised further in Section 2.2.2 below.

⁶ Environment Agency, 2022, PR24 WINEP driver guidance – Water Resources Regional Plan Long-term Environmental Destination

The [WReN Draft Regional Plan](#) for the north, and [WRN Draft Regional Plan](#) for the east that we contributed to during AMP7 are currently available.

2.2.2 WRMP24

To develop our [WRMP24](#), we held a series of stakeholder workshops where we also discussed the EDWRMP driver. In May 2022, we held workshops with our regulators: the Environment Agency and Natural England. In June 2022, we held stakeholder workshops in our Essex and Suffolk regions with representatives from: Rivers Trusts, Consumer Council for Water, local government, wildlife trusts, universities, National Waterways, Broads Authority, angling trusts, RSPB, National Farmers Union, Water Level Management Alliance, and private landowners. In our Northumbrian area, we worked closely with the North East Catchment Hub. We also engaged with water companies who operate nearby including Yorkshire Water, Anglian Water and Affinity Water via the WRE and WReN Environmental Task and Finish Groups.

During AMP7, our WRMP24 work focused on our Essex and Suffolk regions as no abstraction reductions were identified for our Northumbrian region through WReN’s regional planning. We applied the groundwater and surface water licence reductions as set out in WRE’s BAU+ EDWRMP scenario to draft our WRMP24 preferred plan for our three Suffolk WRZs. We then used the WRE BAU and Enhanced scenarios to assess the sensitivity of our preferred plan. For our Essex WRZ, we applied the same methodology using WRE’s groundwater licence reductions however not for our surface water abstraction reductions. Instead, we developed an alternative BAU+ scenario which protects the aquatic environment through the implementation of Hands-Off Flow⁷ (HOF) conditions on our river abstractions in Essex. Using this combined approach, we created our own ‘ESW BAU+’ EDWRMP scenario, which we used in our draft WRMP24 preferred plan and provided to WRE for use in their least cost modelling at the regional level.

Using the BAU+ EDWRMP scenario, we established the deployable output (DO) reductions for each of our WRZs, which have been incorporated into our preferred WRMP24 plan from the start of AMP12 (2045/46). The DO reductions (Table 2) show that we will need to achieve a reduction in DO of 8% across our Essex and Suffolk regions, a total of 45 MI/d, to protect the environment over the long term. This will be in addition to the reductions arising from the AMP7 WINEP and ongoing Environment Agency licence capping processes.

TABLE 2: DEPLOYABLE OUTPUT REDUCTIONS FOR EACH WRZ AS INCORPORATED INTO WRMP24.

WRZ	Region	Deployable Output Reduction	
		(MI/d)	(% of WRZ DO)
Essex	Essex	7	2
Blyth		1.6	11
Hartismere	Suffolk	0.7	8
Northern Central		36	50
ESW Total		45	8

⁷ This is an operational threshold to stop water abstraction to ensure low river flows are protected.

Details of our WRMP24 are included in our [WRMP Supply Options enhancement case](#) (NES14).

2.3. OUR ASSUMPTIONS FOR BASE SPEND IN AMP8

c) Does the proposed enhancement investment or any part of it overlap with activities to be delivered through base, and where applicable does the company identify the scale of any implicit allowance?

The assumptions we have made to allocate investment to base or enhancement cases in AMP8 are outlined in Table 3. We assume that continuing any business-as-usual activities that deliver against needs from previous AMPs will be covered by base investment. This can include ongoing monitoring (water quality or other benefits) or land management. However, as the EDWRMP driver is new to PR24, there are no previous AMP EDWRMP investment outcomes to monitor or manage. Our AMP8 base expenditure is outlined in Section 2.4.

As all requirements for the EDWRMP driver are statutory requirements, the investment required wholly aligns with enhancement. Our AMP8 needs are summarised in Section 2.5.2.

TABLE 3: OUR ASSUMPTIONS AROUND BASE AND ENHANCEMENT INVESTMENT

Base	Enhancement
<ul style="list-style-type: none"> Ongoing water quality or environmental health monitoring following previous AMP enhancement investment Items funded at previous price reviews 	<ul style="list-style-type: none"> Needs aligned with statutory obligations Improving water supply resilience against impacts of climate change

2.4. BASE EXPENDITURE FOR AMP8

As the EDWRMP driver is new to PR24, there was no base expenditure for this in AMP7 or earlier price reviews. Our business-as-usual catchment management activities will be covered by base investment.

2.5. NEED FOR ENHANCEMENT EXPENDITURE IN AMP8

*b) Is the scale and timing of the investment fully justified, and for statutory deliverables is this **validated by appropriate sources** (for example in an agreed strategic planning framework)?*

2.5.1 Our Environmental Destination obligations

Under the EDWRMP driver, water companies are required to contribute to reducing abstractions or enhancing the water environment to meet outcomes of the regional plan⁸. This is linked to our obligations under the new *National Framework for Water Resources*, as well as to our obligation to prepare WRMPs as described below.

⁸ Environment Agency, 2022), PR24 WINEP driver guidance – Water Resources Regional Plan Long-term Environmental Destination

In March 2020, the Environment Agency published the *National Framework for Water Resources*⁹ (National Framework) which outlines potential water resources scenarios to 2050 and beyond. The National Framework recognises that current levels of water abstraction by all stakeholders may not be sustainable in the future due to climate and land use changes. It therefore identified that an overall reduction in abstraction of between 1,200m and 2,200 MI/d may be needed by 2050 to ensure abstraction sustainability¹⁰. This equates to a reduction in the East of England of between 269 and 567 MI/d, and in the North between 100 and 164 MI/d across all sectors by 2050. The National Framework sets out a range of water resource (environmental destination) scenarios to 2050 and beyond that Regional Water Resource Groups and their constituent water companies need to build into their WRMPs to deliver a step change in resilience and provide the required environmental protection. The range of environmental destination (ED) scenarios published in the National Framework¹¹ are summarised in Table 4. The EDWRMP scenarios will consider meeting current regulatory compliance in waterbodies and protected areas up to 2050 as well as outcomes determined by the regional group's stakeholders to enhance or protect any priority habitats or other locally significant environmental features.

The National Framework also sets out the need for regional plans to identify how the security of public water supply and the protection of the environment will be managed. The statutory element of these plans is through the delivery of individual company WRMPs as outlined in Section 2.1. The *Water Resources Planning Guideline*¹² describes the obligation on water companies to prepare and maintain a WRMP which must set out how we intend to achieve a secure supply of water for our customers and a protected and enhanced environment. The duty to prepare and maintain a WRMP is set out in sections 37A to 37D of the *Water Industry Act 1991*¹³. WRMPs must be prepared every five years, reviewed annually, and should forecast supply and demand over a minimum of 25 years. They are expected to reflect regional plans to ensure a cohesive set of plans, unless there is clear justification for not doing so.

Under the National Framework, water companies are required to incorporate the outcomes of regional planning in their WRMPs. Therefore, Regional Water Resource Groups are obliged to employ the range of EDWRMP scenarios published in the National Framework to build their plans at the regional level. Likewise, as a water company we are obliged to employ the range of EDWRMP scenarios to develop our WRMP so that we can demonstrate our plan to secure public water supply while protecting the environment over the long term. As part of this we need to verify the abstraction licence reductions if identified by WReN and WRE in the Regional Plans and confirm their ability to meet environmental objectives at a local scale in light of future climate change.

Our obligations are outlined further in PR24 WINEP EDWRMP driver guidance¹⁴.

⁹ UK Government, Accessed: 30/03/23, [Meeting our future water needs: a national framework for water resources - GOV.UK \(www.gov.uk\)](https://www.gov.uk/government/consultations/meeting-our-future-water-needs-a-national-framework-for-water-resources)

¹⁰ Our interpretation of 'sustainable' being that EFIs are met in surface waterbodies at 'Recent Actual' abstraction rates.

¹¹ Environment Agency, 2020, Appendix 4: Longer term environmental water needs, Water resources national framework, Version 1.

¹² UK Government, July 2022, Water Resource Planning Guideline, Guidance, [Water resources planning guideline - GOV.UK \(www.gov.uk\)](https://www.gov.uk/government/consultations/water-resources-planning-guideline)

¹³ <https://www.legislation.gov.uk/ukpga/1991/56/contents>

¹⁴ PR24 WINEP driver guidance - Water Resources Regional Plan Long-term Environmental Destination (Environment Agency, 2022)

TABLE 4: THE FOUR EDWRMP SCENARIOS IN THE NATIONAL FRAMEWORK FOR APPLICATION IN THE DEVELOPMENT OF WRMPs

ED Scenario	Description
Business as usual (BAU)	Under this scenario our policy and regulatory approach remains the same. This means that we continue to protect the same percentage of natural flows for the environment. Along with this, flow and groundwater balance tests evolve as a proportion of natural flows as these are changed by the impacts of climate change. In this way the environment adapts to climate impacts on flows and groundwater. Excludes waterbodies assumed to be uneconomic within the river basin management plan (RBMP).
Enhanced	The enhanced scenario sees greater environmental protection for Protected Areas and Sites of Special Scientific Interest (SSSI) rivers and wetlands, principal salmon and chalk rivers. This is achieved by applying the most sensitive flow constraints as appropriate to boost environmental protection. Flow and groundwater balance tests evolve as a proportion of natural flows as climate change alters those flows.
Adapt	Under this scenario our policy adapts to accept that we might not be able to achieve current environmental objectives in a shifting climate. This means recovery to a lower standard in some heavily modified waterbodies. Flow and groundwater balance tests evolve as a proportion of natural flows as these are altered by the impacts of climate change.
Combined	Under this scenario we combine our business as usual, enhanced and adapt approaches. This balances greater environmental protection for Protected Areas, SSSI rivers and wetlands and principal salmon and chalk rivers with a view that good status (as defined under the Water Framework Directive) cannot be achieved everywhere in a shifting climate. We have looked at this approach at a national level but it requires more detailed local analysis to better understand how best to protect the environment.

Other adaptations of the scenarios in Table 4 have been discussed with the Environment Agency and Natural England. This includes the BAU+ EDWRMP scenario as used to inform our WRMP24 (see Section 2.2.2) to account for achieving the Environment Flow Indicators (EFI) (minimum flows required to protect river environments and ecology) across all waterbodies, not just those that are economically viable under the WFD hydrological regime driver.

2.5.2 Our AMP8 Needs

- d) Does the need and/or proposed enhancement investment overlap or duplicate with activities already funded at previous price reviews?*
- g) Is the investment driven by factors outside of management control? Is it clear that steps been taken to control costs and have potential cost savings (eg spend to save) been accounted for?*

We have identified seven needs against the EDWRMP driver that we intend to deliver in AMP8. Our needs are outlined in Table 5, alongside their issue and root cause, and the WINEP Action ID that has been assigned to the need as part of our WINEP submission to the Environment Agency. Our needs are relevant to both our regions and are primarily investigations.

As summarised in Section 2.2.2, in 2022 we hosted a series of stakeholder workshops in our regions to establish our WRMP24 objectives and discuss the EDWRMP driver and the need for a regional options appraisal with other water

companies who operate nearby. Outcomes of these workshops have informed four detailed, site-specific investigations (INV needs) for AMP8, as well as our WRMP24 which outlines our objectives to deliver our EDWRMP needs in AMP8 and beyond. These INV needs include assessing the WRE-identified abstraction reductions at a local scale to confirm how we can continue to meet our site-specific environmental objectives (08ES100104 and 08ES100103). This work will improve our understanding of environmental flow requirements in our source waters and will enable us to consider the need to reduce drinking water abstractions as identified at the regional level. In our Northumbrian region, this has also identified two needs: to understand the resilience of the Wear Magnesian Limestone aquifer, that we rely on for drinking water abstraction, to climate change (08NW104125), and to understand the impacts of the increased use of our Tyne to Tees Transfer (TTT) on downstream flows and habitats (08NW104100). The TTT is a tunnel/pipeline that has been designed to replace flows taken from the Tees by water industry users.

In addition, the Environment Agency have stipulated that we must carry out two joint water industry option appraisals to inform WReN (08MU100397) and WRE (08MU100303) Regional Plans. The Environment Agency is encouraging water companies within a region to work together to have a joined up regional strategy. As mentioned above, we discussed this need with other water companies that operate nearby to us during our 2022 stakeholder workshops, including Yorkshire Water, Anglian Water and Affinity Water via the WRE and WReN Environment Task and Finish Groups.

Finally, we identified a single IMP need for better representation at WRE working groups as there is a risk that our water resource objectives will not be appropriately considered when the WRE develop their Strategic Plans which may reduce our ability to achieve our local objectives (08ES100102).

TABLE 5: THE NEEDS FOR THE WATER RESOURCES REGIONAL PLAN LONG-TERM ENVIRONMENTAL DESTINATION DRIVER

	Risk / Issue	Root Cause	Need	WINEP Action ID	
	EDWRMP_INV				
Northumbrian	1	There is a risk that the Wear Magnesian Limestone aquifer will experience saline intrusion through climate change effects on sea level rise and surface water flooding (from extreme rainfall) that could lead to deterioration in water quality, and reduction in groundwater availability.	We have a limited understanding of how resilient the Wear Magnesian Limestone aquifer is to climate change (saline intrusion from sea level rise and extreme rainfall) and the impact this will have on our existing drinking water abstractions.	To understand the resilience of the Wear Magnesian Limestone aquifer to climate change, and how this will impact our groundwater abstractions.	08NW104125
	2	There is a risk that increasing industrial demand from Teesside may impart more and different pressures (in terms of flow seasonality) on freshwater flows in rivers associated with the TTT and associated habitats.	We have a limited understanding of the ecological impacts on river flows and habitats due to increased water transfers through the TTT tunnel, as the scheme has not yet needed to accommodate its design capacity.	To understand the impacts of the forecasted increase in use of the TTT tunnel transfers on associated downstream flows and habitats.	08NW104100
	3	WReN's top-down approach to EDWRMP scenarios in their Regional Plan may not achieve the required improvements to the water environment and may significantly compromise existing abstractions requiring us to seek alternative supply options to meet demand.	The Environment Agency has identified that WReN's Regional Plans do not go far or fast enough into the development and delivery of schemes to address EDWRMP Needs.	The Need, defined by the Environment Agency, is for us to contribute to joint water industry options appraisals to inform WReN's Regional Plan.	08MU100397
Essex and Suffolk	4	We have a limited understanding of future freshwater flow requirements to support estuarine habitats, and as a result there is a lack of clarity over the flow rates applied in the Hands off Flow (HoF) thresholds for downstream waterbodies. This could lead to insufficient flows being provided for environmental outcomes, or more flows than are needed which comes at a cost to our customers.	The future predicted and fully licensed abstraction scenarios for 2030 in the Water Resources Geographical Information System database (WRGIS) and regional groundwater models do not consider climate change but are used to assess the risk against current environmental objectives. Water companies as expected by the Environment Agency to assess risks under 2-4°C warming scenarios.	To understand the impact of existing drinking water abstractions across the region on current and future downstream freshwater flows to estuaries under climate change scenarios (2-4°C warming).	08ES100104
	5	We have a limited understanding on how climate change could impact our modelled river flows across the region and require the definition of new Environmental Flows Indices (EFI).	The future predicted and fully licensed scenarios for 2030 in the WRGIS and regional groundwater models do not consider climate change but are used to assess the risk against current environmental objectives. Water companies are expected by the Environment Agency to assess risks under 2-4°C warming scenarios.	To understand the impact of existing drinking water abstractions across the region on downstream future EFIs under climate change scenarios (2-4°C warming).	08ES100103

6	WRE's BAU, BAU+ and Enhanced Environmental Destination scenarios require significant reductions in abstraction, including the complete loss of several of our sources.	The Environment Agency has identified that WRE's Regional Plans do not go far or fast enough in the development and delivery of schemes to address EDWRMP Needs.	The Need, defined by the Environment Agency, is for us to contribute to joint water industry options appraisals to inform WRE's Regional Plan	08MU100303
EDWRMP_IMP				
7	There is risk that we will not be able to achieve our water resource objectives as our WRE stakeholders are not aware of them as they develop their own Strategic Plans for water resources and nature conservation in AMP8 across the ESW area	We are unable to be appropriately represented at WRE working groups to contribute to development of Strategic Plans.	There is a Need for us to contribute to the development and delivery of WRE stakeholder Strategic Plans for water resources and nature conservation in AMP8 across our ESW supply area.	08ES100102

2.5.3 Link to long term strategy

e) Is the need clearly identified in the context of a robust long-term delivery strategy within a defined adaptive pathway?

This investment is needed as part of the 'ensuring sustainable water supplies' investment area under our [Long-Term Strategy](#) (LTS) core pathway.

Abstraction reductions relating to the EDWRMP driver are one of the main reasons why we are investing £330m in new water supplies and pipelines in Essex and Suffolk, to meet the required abstraction reductions by 2032. In the short-term, the need for further abstraction reductions would mean developing both Lowestoft Reuse and a North Suffolk Reservoir starting in 2025.

Our core pathway in the LTS includes the investment required to meet demand to 2050, as set out in our WRMP. In addition to interventions to reduce demand and leakage, and new water supplies, we must also prepare for alternative pathways as identified in the WRMP. There are two trigger points in particular that could have a large impact on our customers: if we need the Southend Reuse Plant; or if we need the Canvey Island Desalination Plant (both from 2031).

We will need to switch to these alternative pathways if further abstraction reductions are needed under Environmental Destination (both schemes would be required under this scenario). The investigations in this enhancement case will support those decisions for WRMP29. This includes looking at the impact of abstractions under future climate change related temperature increases, to understand how we can update and refine our scenario analysis for future WRMP and price control periods.

We consider this is low / no regret investment because it is needed to meet statutory requirements in 2025-30. We have a legal obligation to deliver this investment by 2030, but our investigations will need to be complete by 2027 to support future planning and decision points under our LTS.

We also consider this is required enabling investment because it is needed to keep options needed to meet the adverse abstraction reduction Ofwat common reference scenario open. This investment is required to identify which future options included as alternative pathways in the LTS will be required.

We therefore consider this investment is necessary in 2025-30 to deliver our LTS.

This investment combined with decisions about abstraction reductions needed under EDWRMP will determine whether further investment is required beyond 2030 as set out in the alternative pathways in our LTS.

2.6. CUSTOMER SUPPORT FOR THE NEED

f) *Where appropriate, is there evidence that customers support the need for investment (including both the scale and timing)?*

These projects are all a consequence of statutory requirements, and so we have not discussed the specific needs with customers. That is because our research shows that customers expect us to meet our statutory obligations, and it is not appropriate to discuss delaying or phasing investment where there are no alternatives to meet the statutory requirement to deliver our part of WINEP.

Our research shows that customers support investment in the environment, including wider environmental and social benefits – though they do not necessarily think they should always pay for this through their water and wastewater bills. In particular, our customers rank improving the quality of rivers as one of their “medium” priorities ([prioritisation of common PCs](#), NES44).

In our [qualitative affordability and acceptability testing](#) (NES49), customers supported our “preferred” plan which included these investigations. Customers found this plan acceptable because it focused on the right things, is good for future generations, and is environmentally friendly. Customers who did not find this plan acceptable said that this was expensive, and water companies should pay out of their own profits. We did not ask specifically about these investigations (as our individual items were limited only to the largest investments), but customers supported maintaining rivers (NES49). In our [quantitative research](#) (NES50), 74% of customers supported our preferred plan, including this investment.

3. BEST OPTION FOR CUSTOMERS

- c) In the best value analysis, has the company fully considered the carbon impact (operational and embedded), natural capital and other benefits that the options can deliver? Has it relied on robustly calculated and trackable benefits when proposing a best value option over a least cost one?*
- d) Is the impact (incremental improvement) of the proposed option on the identified need been quantified, including the impact on performance commitments where applicable?*
- e) Have the uncertainties relating to costs and benefit delivery been explored and mitigated? Have flexible, lower risk and modular solutions been assessed – including where forecast option utilisation will be low?*
- f) Where appropriate, has the company secured appropriate third-party funding (proportionate to the third-party benefits) to deliver the project?*
- g) Has the company appropriately considered the scheme to be delivered as Direct Procurement for Customers (DPC) where applicable?*
- h) Where appropriate, have customer views informed the selection of the proposed solution, and have customers been provided sufficient information (including alternatives and its contribution to addressing the need) to have informed views?*

To determine the best option for customers to address each need in Table 5, we applied two different optioneering methodologies depending on the driver code. For the IMP driver code, we applied a methodology based on the principles of HM Treasury's *The Green Book: Central Government Guidance on Appraisal and Evaluation*¹⁵ and the *WINEP Options Development Guidance*¹⁶, as outlined in Figure 1. A full description of each step and the output from it is contained in the sections following. Table 6 summarises how our options development process aligns with the six WINEP options development principles.

For the INV driver code, where there is a clear need to investigate and address a knowledge gap, we worked with the Environment Agency and Mott MacDonald to scope up an appropriate means of investigation. Therefore, our INV needs were not subject to full optioneering, which is in line with the WINEP driver guidance¹⁷. Our proposed EDWRMP_INV solutions are summarised in Section 3.1.2.

¹⁵ HM Treasury, 2022, *The Green Book, Central Government Guidance on Appraisal and Evaluation*

¹⁶ Environment Agency, July 2022, *Water Industry National Environment Programme (WINEP), Options Development Guidance*.

¹⁷ Environment Agency, 2022, PR24 WINEP driver guidance – Water Resources Regional Plan Long-term Environmental Destination

FIGURE 1: PROCESS FOR DEVELOPING AND FILTERING OPTIONS TO ADDRESS OUR IMPLEMENTATION NEED

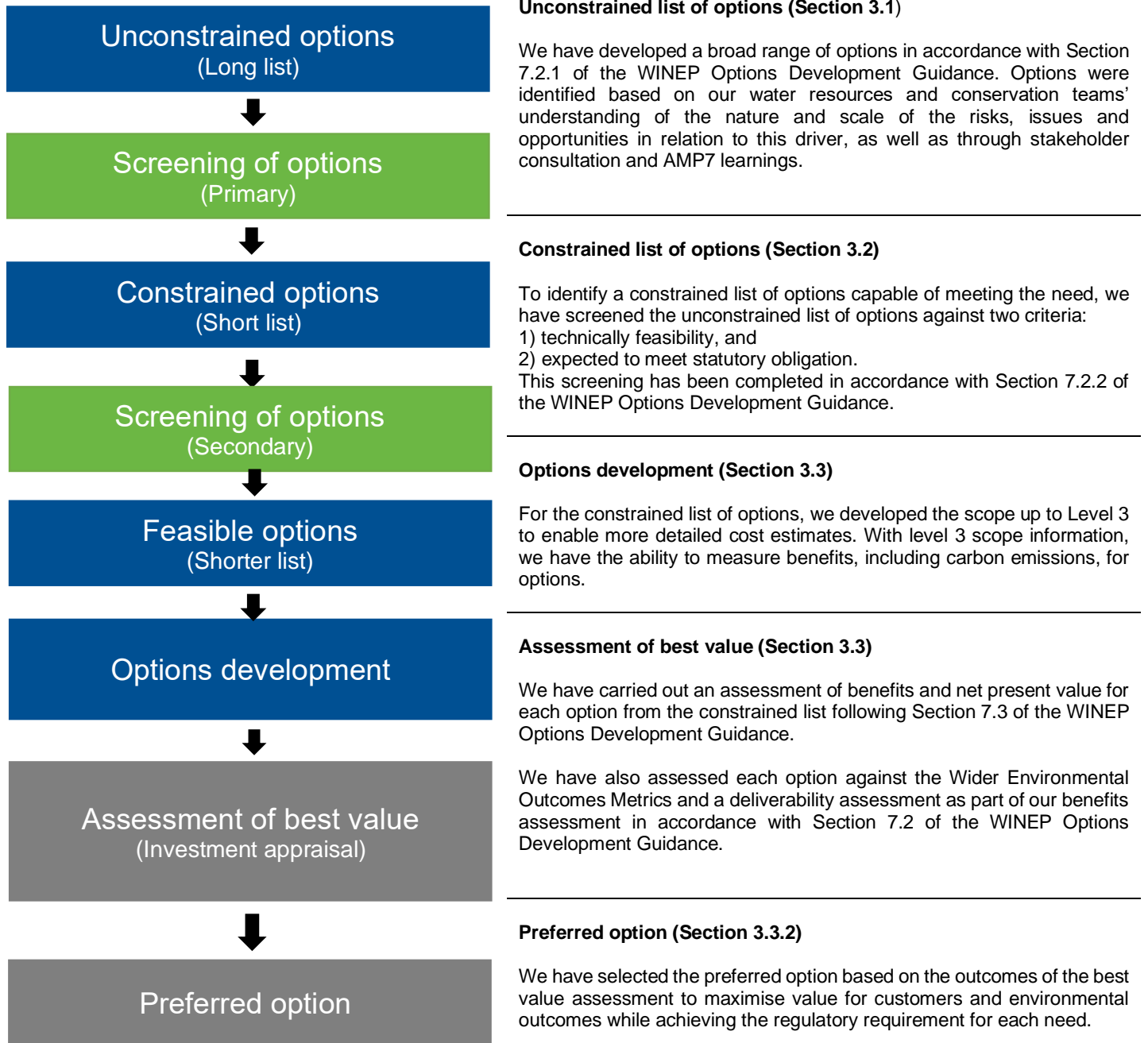


TABLE 6: WINEP OPTIONS DEVELOPMENT PRINCIPLES

Expectation	How this has been met
Environmental net gain	Our Value Framework enables an assessment of environmental net gain for options through assessing the potential environmental impacts of each option with consideration for natural environment, net zero, catchment resilience, access, amenity and engagement. We use this assessment to choose the option that provides the greatest overall environmental benefit/cost ratio.
Natural capital	We have assessed each of our options against the full range of natural capital metrics and wider environmental objectives as part of our WINEP assessment to the Environment Agency.
Catchment and nature-based solutions	We have considered a range of solutions within our catchments to address the need including stopping abstraction, establishing new abstractions and participating in catchment partnership projects as shown in Figure 2.
Proportionality	We have taken a proportional approach to options development based on Green Book principles. Further information on our optioneering is outlined in Section 3.
Evidence	We present evidence on our reasoning to discard options within Section 3.2, and evidence how we developed option costs in Section 4.1. Extra evidence of our options development process including data used is available in our Options Development Report and Options Assessment. Our WINEP submission has been independently audited by a third party (Jacobs) and there are no outstanding actions.
Collaboration	We have collaborated with water resource planning groups (WReN and WRE), our regulators (the Environment Agency and Natural England), and other relevant stakeholders to define the needs as outlined in Section 2.2 and 3.4. We have continued to collaborate with the Environment Agency to identify options, as outlined in Section 3. Collaboration with water resource planning groups and other stakeholders will occur as part of the delivery process.

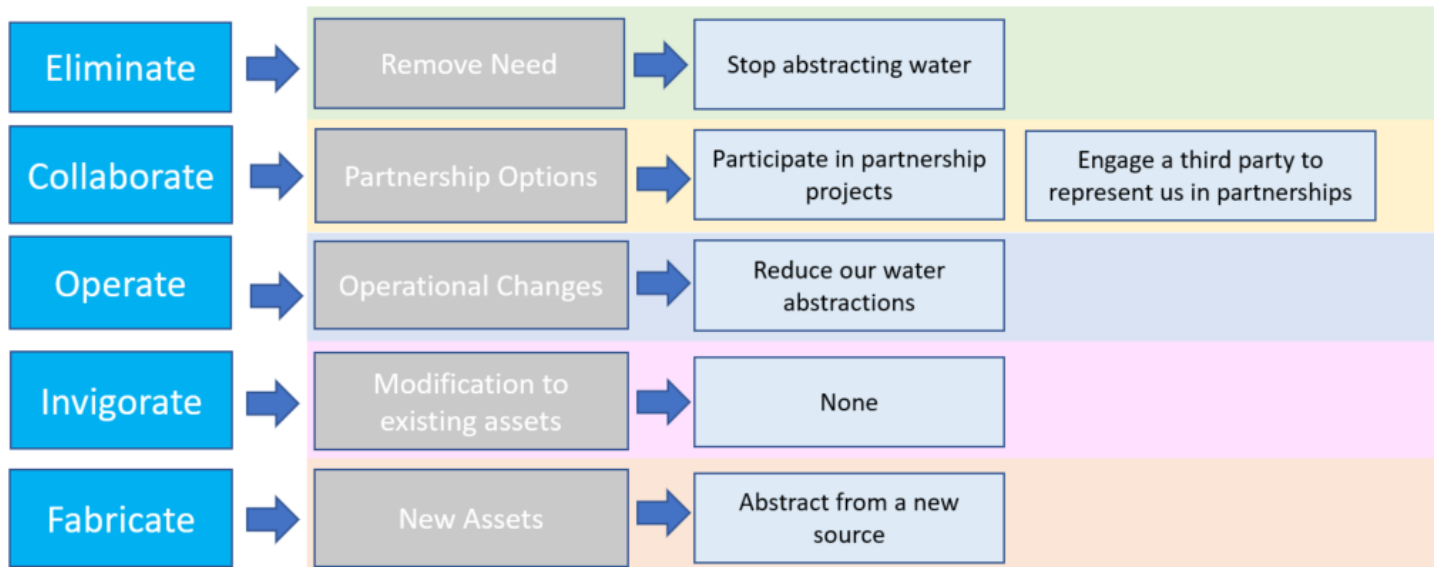
3.1. BROAD RANGE OF OPTIONS

a) *Has the company considered an appropriate range of options to meet the identified need?*

3.1.1 EDWRMP_IMP Need

We identified our list of unconstrained options to address our EDWRMP_IMP need during AMP7 as outlined in Section 2.2, and in line with AMP8 WINEP Options Development Guidance. Our list of unconstrained options is demonstrated in Figure 2 alongside our totex hierarchy categories, to demonstrate a broad range of options considered.

FIGURE 2: THE UNCONSTRAINED LIST OF OPTIONS TO ADDRESS THE IMP NEED, AND THEIR ALIGNMENT TO OUR TOTEX HIERARCHY CATEGORIES



The options development process considers a range of options that can be categorised under a totex hierarchy approach, as presented in Figure 2. Our broad range of options considers those with differing levels of costs and benefits categorised as follows:

- **Eliminate** - identification of processes or practices that remove the need and allow for delivery of social or environmental benefit. For the EDWRMP_IMP need, an eliminate option is to stop abstracting water thereby removing our need to have water resource objectives and to liaise with stakeholders to develop Strategic Plans.
- **Collaborate** - work with stakeholders including through co-funding or collaborative projects to address the need. In this way, costs can be shared with third parties either to deliver the same or an extra level of social and environmental benefit. For the EDWRMP_IMP need, there are two options to contribute to stakeholder Strategic Plans: through direct or indirect participation in partnership projects.
- **Operate** – this includes changes or improvements to operational management practices to address the need. For the EDWRMP_IMP need, reducing our water abstractions may reduce our reliance on WRE stakeholder’s Strategic Plans being informed with our water resource objectives, and reduce the likelihood that delivery of our plans will impact on our ability to meet our objectives.
- **Invigorate** – this includes investment in existing infrastructure to improve performance and address a need. These options typically provide an increased level of benefit but may be of a lower cost than fabricate options. In this case there are no options to invigorate existing infrastructure that will help to address the EDWRMP_IMP need.
- **Fabricate** – this includes new assets to augment or replace existing to meet the need. These options are likely to have the highest costs. Green options will have lower carbon and potentially higher biodiversity and amenity benefits. Traditional grey options are likely to have highest certainty that service-related benefits will be realised. Innovative options have the potential for greater benefits and lower costs but have lower certainty that benefits will be realised. For

the EDWRMP_IMP need, new infrastructure necessary to abstract water from another source that is not in the same area as our existing stakeholders, will reduce our need to contribute to WRE stakeholder’s Strategic Plans.

3.1.2 EDWRMP_INV Needs

Options to address our six EDWRMP_INV needs (Section 2.5.2) were identified during PR24 planning following the WINEP Options Development Guidance. As these needs require investigations, and therefore have one distinct solution, they were not subject to further optioneering. A summary of the solutions against each EDWRMP_INV need is included in Table 7.

We will work with other water companies and our regional water resource groups, WReN and WRE, to deliver the two options appraisals (08MU100397 and 08MU100303). We expect these appraisals to explore opportunities to fast-track the development and delivery of schemes to address EDWRMP needs within the regional WRMPs.

TABLE 7: THE OPTIONS TO ADDRESS THE LONG TERM ENVIRONMENTAL DESTINATION INVESTIGATION (EDWRMP_INV) NEEDS

	Need	WINEP Action ID	Option (type of investigation)
Northumbrian	1 To understand the resilience of the Wear Magnesian Limestone aquifer to climate change, and how this will impact our groundwater abstractions.	08NW104125	Update the Modflow Groundwater Model of the Wear Magnesian Limestone to incorporate Environment Agency recent conceptualisation update, future use, third party use and climate change scenarios.
	2 To understand the impacts of the forecasted increase in use of the TTT tunnel transfers on associated downstream flows and habitats.	08NW104100	Investigate the impacts of the forecasted increase in industrial demand from Teeside on the Tees Estuary within context of EDWRMP and TTT.
	3 The Need, defined by the Environment Agency, is for us to contribute to joint water industry options appraisals to inform WReN’s Regional Plan.	08MU100397	Contribute to options appraisal with members of WReN.
Essex and Suffolk	4 To understand the impact of existing drinking water abstractions across the region on current and future downstream freshwater flows to estuaries under climate change scenarios (2-4°C warming).	08ES100104	Investigate the impact of drinking water abstractions across the region on downstream freshwater flows to estuaries.
	5 To understand the impact of existing drinking water abstractions across the region on downstream future EFIs under climate change scenarios (2-4°C warming).	08ES100103	Investigate the impacts of drinking water abstractions across the region on downstream EFIs.
	6 The Need, defined by the Environment Agency, is for us to contribute to joint water industry options appraisals to inform WRE’s Regional Plan	08MU100303	Contribute to options appraisal with members of WRE.

3.2. PRIMARY AND SECONDARY SCREENING OF OPTIONS

Primary screening was completed for the IMP need in accordance with the AMP8 WINEP Options Development Guidance¹⁸. In this case, the options appraisal was completed as part of PR19 investigations, however this was reviewed in 2022 to confirm the screening process aligned with the AMP8 WINEP guidance. Screening involved assessing each option in the unconstrained (long) list (Section 3.1.1) against two criteria to make sure that each option is:

- technically feasible (to implement), and
- expected to meet the statutory obligation.

If an option does not meet these criteria, then it has been discarded. This screening process aims to produce a constrained (short) list of options to address the IMP need. The outcomes of the primary screening of the options to address the ESWRMP_IMP need are outlined in Section 3.2.1. Note that INV needs are not subject to full optioneering and solutions to these needs are outlined in Section 3.1.2.

Secondary screening of the remaining options involved determining the costs and the benefits each shortlisted option would expect to deliver. This was completed to understand whether the options were obviously higher in cost, carbon or would deliver less benefit compared to other options. This process produced a feasible list of options for each need. Our assessment of Benefits is included in Section 3.3.1 and our approach to costing is outlined in Section 3.7. These have then been used to inform the cost benefit appraisal to determine the preferred option in Section 3.3.2.

3.2.1 EDWRMP_IMP Need

The outcomes of the primary screening of the unconstrained list of options to meet the EDWRMP_IMP need (as outlined in Section 3.1.1) are summarised in Table 8.

¹⁸ Environment Agency, July 2022, WINEP Options Development Guidance - Section 7

TABLE 8: THE OUTCOMES OF THE PRIMARY SCREENING PROCESS FOR OUR EDWRMP_IMP NEED

Totex Hierarchy Category	Option	Technically Feasible?	Meets Statutory Obligation?	Primary Screening Outcome
Eliminate	1 Stop abstracting water	No	Yes	Discarded: We are unable to stop abstracting from our sources which are used for drinking water supply.
Collaborate	2 Participate in partnership projects	Yes	Yes	Carried forward
	3 Engage a third party to represent us in partnerships	Yes	Yes	Carried forward
Operate	4 Reduce our water abstractions	No	No	Discarded: We cannot reduce our abstractions and therefore this will not allow us to meet our statutory obligations.
Fabricate	5 Abstract from a new source	No	No	Discarded: There are no alternative sources available to meet demand in these areas.

Options that did not satisfy the two criteria were rejected through this primary screening processes and have been captured in a Rejection Register for future reference. Of the five options in the unconstrained list, two are expected to address both criteria and are therefore carried through to secondary screening as summarised in Table 9. The two options are for collaboration, either through participation in partnership projects or through engaging a third party, to address our IMP need (08ES100102).

TABLE 9: THE SHORT LIST OF OPTIONS TO ADDRESS THE LONG-TERM ENVIRONMENTAL DESTINATION IMPLEMENTATION (EDWRMP_IMP) NEED

Need	WINEP Action ID	Totex Hierarchy Category	Option
Essex and Suffolk	08ES100102	Collaborate	2 Participate in partnership projects
			3 Engage a third party to represent us in partnerships

3.3. BEST VALUE FOR CUSTOMERS

b) *Has a robust cost–benefit appraisal been undertaken to select the proposed option? There should be evidence that the proposed solution represents best value for customers, communities and the environment over the long term? Is third-party technical assurance of the analysis provided?*

3.3.1 Benefits Scoring

For each option carried forward to this stage we have completed a benefits assessment using our Value Framework which contains performance commitments, Wider Environmental Outcomes¹⁹ and other metrics. We have incorporated the Wider Environmental Outcomes Metrics²⁰ into our Value Framework, which is embedded into our portfolio optimisation tool, Copperleaf, used to carry out appraisal of options. Benefits are scored over time for a 30-year time horizon. This scoring considers the certainty of benefits being realised for different types of options.

As per the WINEP guidance, our INV solutions have not been scored against our Value Framework. Regardless, we anticipate that our AMP8 investigations will inform our future AMP ED efforts to meet local environmental objectives in light of future climate change and to deliver benefits that align with the WINEP Wider Environmental Outcomes: natural environment, net zero and catchment resilience. Through our AMP8 investigations we will be able to better understand:

- Environmental flow requirements in our source waters (08ES100104 and 08ES100103) so they can be effectively considered when we assess risks under 2-4°C warming scenarios, which will inform our abstraction rates,
- How resilient the Wear Magnesian Limestone aquifer is to climate change (08NW104125), particularly saline water intrusion from sea level rise and extreme rainfall, so we can effectively manage our abstractions from it in future without having a detrimental impact on it,
- The ecological impacts of the increased use of the TTT (08NW104100) so we can better understand and manage the freshwater flows in rivers associated with it, and
- Through contribution to regional options appraisals (08MU100397 and 08MU100303) we will be able to encourage effective development and delivery of schemes to address EDWRMP needs across our regions.

We have not been able to score our IMP need against our Value Framework due to the nature of the solution, which is about effective representation at WRE working groups. However, we will be able to assess benefits of this representation when project scope for development and delivery of the Strategic Plans is better defined. We anticipate that there will be benefits delivered through this partnership working, particularly with regards to ensuring that our EDWRMP objectives across Essex and Suffolk are considered during development and delivery of the regional Strategic Plans. We expect benefits to align with the WINEP Wider Environmental Outcomes: natural environment, net zero and catchment resilience. Therefore, at this point, we expect to differentiate between our two short-listed options based on cost only.

¹⁹ Environment Agency, March 2022, WINEP Options Assessment Guidance

²⁰ Environment Agency, 07.04.2022, WINEP Wider Environmental Outcome Metrics V2.1

3.3.2 Cost benefit appraisal to select preferred option

For each of the technically feasible options we have carried out a robust cost benefit appraisal within our portfolio optimisation tool to select the preferred option. This calculates an NPV over 30 years, in accordance with the PR24 Guidance, and the cost to benefit ratio for each option. The ratio is calculated by dividing the present value of the profile of benefits by the present value of the profile of costs over the appraisal period of 30 years.

Costs and benefits have been adjusted to 2022/23 prices using the CPIH²¹ Index financial year average. The impact of financing is included in the benefit to cost ratio calculation. Capital expenditure has been converted to a stream of annual costs, where the annual cost is made up of depreciation/RCV run-off costs and allowed returns over the life of the assets. Depreciation (or run-off) costs are calculated using the straight-line depreciation over the appraisal period. To discount the benefits and costs over time, we have used the social time preference rate as set out in 'The Green Book'.

The NPVs and cost benefit ratios for the short-listed options to address our IMP need (08ES100102) have been generated by our portfolio optimisation tool and are included in Table 10. As outlined in Section 3.3.1, we have not been able to complete a benefits assessment for our IMP short-listed options due to the nature of the solution, and lack of defined project scope at this stage. This means that the NPVs shown are driven by cost only. The option to 'Participate in partnership projects' is expected to deliver the greatest value as it has the highest NPV (-£0.267m) of the options. In this case, the least cost option is the same as the best value option. Therefore, our preferred option to address our IMP need to contribute to the development and delivery of WRE stakeholder Strategic Plans is to 'participate in partnership projects'. This option will require £0.315m of investment over the AMP, which is 66.7% of the cost of engaging a third party to represent us. Our costing methodology for these IMP solutions is included in Section 4.1.2.

NPVs for the INV solutions are not presented as they are not expected to deliver a benefit in AMP8, rather they will inform future work, and therefore did not require a benefits assessment as outlined in the WINEP Options Development Guidance. This means that our solutions to our INV needs represent our preferred options. Costs for these options are included in Section 3.3.3 below.

We have had independent third-party assurance carried out by Jacobs on our AMP8 WINEP programme to ensure suitability and reliability of our programme, and to confirm that we have followed the WINEP Options Development Guidance. This exercise utilised a sample of our water WINEP drivers, including EDWRMP within this case.

²¹ Consumer Prices Index including owner occupiers' housing costs.

TABLE 10: NET PRESENT VALUES AND PREFERRED OPTION TO ADDRESS OUR LONG TERM ENVIRONMENTAL DESTINATION IMPLEMENTATION (EDWRMP_IMP) NEED

Need	WINEP Action ID	Option	Net Present Value (30 years) (£)	Benefit to Cost Ratio	Chosen option
Essex and Suffolk 7	08ES100102	2 Participate in partnership projects	-0.267m	0.00	Preferred
		3 Engage a third party to represent us in partnerships	-0.414m	0.00	Alternative
		There is a Need for us to contribute to the development and delivery of WRE stakeholder Strategic Plans for water resources and nature conservation in AMP8 across our ESW supply area.			

3.3.3 Costs for Preferred Options

A summary and breakdown of costs to deliver our AMP8 needs are outlined in Table 11. Please note that our AMP8 costs for our participation in partnership projects to address need 08ES100102 include costs that will fall in the last year of AMP7 due to the enhanced spend requirement. Costs are forecast to be spent from 2024 onwards to address this need. Table 11 also demonstrates the total cost to address our AMP8 needs and maintain them over the next 30 years (up to 2055). This 30-year cost profile has been included to match the 30-year profile applied to our benefits assessments so that it aligns with the 30-year profile required of the cost benefit ratio assessment. As outlined in Section 3.3.1, we were unable to complete a benefits assessment for our IMP options, and therefore the differentiator between the options has been cost.

TABLE 11: SUMMARY OF COSTS REQUIRED TO DELIVER OUR ENVIRONMENTAL DESTINATION NEEDS IN AMP8. COSTS ARE ROUNDED TO THE NEAREST £

Need	WINEP Action ID	Preferred Option	Capex (AMP8) (£)	Opex (AMP8) (£)	Totex (AMP8) (£)	Totex (up to 2055 -AMP13) (£)		
EDWRMP_INV								
Northumbrian	1	To understand the resilience of the Wear Magnesian Limestone aquifer to climate change, and how this will impact our groundwater abstractions.	08NW104125	Update the Modflow Groundwater Model of the Wear Magnesian Limestone to incorporate Environment Agency recent conceptualisation update, future use, third party use and climate change scenarios.	127,075	0	127,075	127,075
	2	To understand the impacts of the forecasted increase in use of the TTT tunnel transfers on associated downstream flows and habitats.	08NW104100	Investigate the impacts of the forecasted increase in industrial demand from Teeside on the Tees Estuary within context of EDWRMP and TTT.	90,875	21,250	112,125	112,125
	3	The Need, defined by the Environment Agency, is for us to contribute to joint water industry options appraisals to inform WReN's Regional Plan.	08MU100397	Contribute to options appraisal with members of WReN.	336,250	37,500	373,750	373,750
Essex and Suffolk	4	To understand the impact of existing drinking water abstractions across the region on current and future downstream freshwater flows to estuaries under climate change scenarios (2-4°C warming).	08ES100104	Investigate the impact of drinking water abstractions across the region on downstream freshwater flows to estuaries.	240,345	60,150	300,495	300,495

Need	WINEP Action ID	Preferred Option	Capex (AMP8) (£)	Opex (AMP8) (£)	Totex (AMP8) (£)	Totex (up to 2055 -AMP13) (£)
5 To understand the impact of existing drinking water abstractions across the region on downstream future EFIs under climate change scenarios (2-4°C warming).	08ES100103	Investigate the impacts of drinking water abstractions across the region on downstream EFIs.	381,225	0	381,225	381,225
6 The Need, defined by the Environment Agency, is for us to contribute to joint water industry options appraisals to inform WRE's Regional Plan	08MU100303	Contribute to options appraisal with members of WRE.	336,250	37,500.00	373,750	373,750
EDWRMP_IMP						
7 There is a Need for us to contribute to the development and delivery of WRE stakeholder Strategic Plans for water resources and nature conservation in AMP8 across our ESW supply area.	08ES100102	Participate in partnership projects	283,795 ²²	31,650 ²³	315,445 ²⁴	315,445
TOTAL			1,795,815	188,050	1,983,865	1,983,865

3.4. THIRD PARTY FUNDING

We intend to continue to work in partnership with our relevant stakeholders as much as possible to deliver our AMP8 needs. This partnership working at times presents the opportunity for third party funding. In our Essex and Suffolk region, we will be working collaboratively with local councils, WRE and other partnership projects, such as Norfolk Water Strategy Programme, Water for Tomorrow, and Essex Water Strategy to help deliver the Strategic Plans for water resources and

²² This cost includes £47,299.17 which will be spent in AMP7.

²³ This cost includes £5,275.00 which will be spent in AMP7.

²⁴ This cost includes £52,574.17 which will be spent in AMP7.

nature conservation (08ES100102), to realise greater benefits for the environment and ultimately better value for money for customers than delivering in isolation.

3.5. DIRECT PROCUREMENT FOR CUSTOMERS

We assessed this programme against the DPC guidance (see our [assessment report](#), NES38). This report concludes there are no opportunities for direct procurement for customers relevant to this programme because the projects are small value and less than <£200m of whole life totex.

3.6. DELIVERABILITY ASSESSMENT

In accordance with the WINEP options development guidance we have carried out a deliverability assessment for our options. This has considered:

- The technical feasibility of implementing an intervention (Section 3.2) – all of the short-listed options are technically feasible to implement.
- The certainty that benefits for each option will be realised. This has been assessed as part of the likelihood scoring in our benefits assessment. More information on our benefits assessment is included in Section 3.3.1.
- Lessons learned from AMP7 efforts to encourage efficiency. Our AMP7 progress is summarised in Section 2.2.
- The confidence with which we can deliver by 2030.
- Early start to make sure of delivery by the due dates. To deliver against our IMP need in AMP8, an enhanced spend is required (as outlined in Section 2.5).

Additionally, we have taken a two-phased approach to implementing abstraction reductions under the EDWRMP driver; half by 2040/41, and the remaining half by 2045/46. This allows the AMP8 and AMP9 WINEP investigations to increase our certainty in the reductions required to be achieved by 2050, as required by the National Framework, and for WRMP24 new supply side options to become available.

3.7. CUSTOMERS VIEWS INFORMING OPTION SELECTION

h) Where appropriate, have customer views informed the selection of the proposed solution, and have customers been provided sufficient information (including alternatives and its contribution to addressing the need) to have informed views?

In this case, there are no specific options – but the results of these investigations will inform engagement with customers about the WRMP29.

4. COST EFFICIENCY

4.1. COST METHODOLOGY

- a) *Is it clear how the company has arrived at its option costs? Is there supporting evidence on the calculations and key assumptions used and why these are appropriate?*
- b) *Is there evidence that the cost estimates are efficient (for example using similar scheme outturn data, industry and/or external cost benchmarking)?*
- c) *Does the company provide third party assurance for the robustness of the cost estimates?*
- d) *Is there compelling evidence that the additional costs identified are not included in our enhancement model approach?*
- e) *Is there compelling evidence that the allowances would, in the round, be insufficient to account for evidenced special factors without an enhancement model adjustment?*
- f) *Is there compelling econometric or engineering evidence that the factor(s) identified would be a material driver of costs?*

We have followed WINEP guidance to determine the costs for our short-listed options. A full description of our costing methodology is contained in A3 Costs Appendix. The costs for our EDWRMP_INV and EDWRMP_IMP options are Level 3 and have been assured by a third party (Mott MacDonald). Table 12 provides a list of the assumptions we applied to the costs for each option. A summary of the costing methodology for the EDWRMP_INV and EDWRMP_IMP options is provided below.

TABLE 12: SUMMARY OF ASSUMPTIONS APPLIED TO EACH COST BUILD

Cost Element	Assumption
Project Management	- 15% of total cost excluding risk and uncertainty - Will be covered by operational expenditure
Risk	10% of total cost including project management
Uncertainty	20% of total cost including project management and excluding risk

4.1.1 For Investigations

We developed an investigation costing matrix to inform the cost build for all our AMP8 water WINEP investigations. The matrix is based on our experience of typical investigation steps, degrees of complexity and costs. It therefore provides us with a standardised approach to inform costs. A summary of the costing matrix is shown in Table 13.

TABLE 13: INVESTIGATION COSTING MATRIX SHOWING UNIT RATES (£) APPLIED TO ELEMENTS OF INVESTIGATION

Cost Element	Complexity		
	Low	Medium	High
Desk assessment	£5,000	£10,000	£15,000
Monitoring²⁵	£4,500 – 18,000	£7,500 – 60,000	£12,000 - 180,000
Modelling²⁶	£10,000 – 40,000	£25,000 - 50,000	£50,000 – 150,000
Options appraisal	£5,000	£10,000	£15,000
Reporting	£2,000	£15%	£20%

These cost elements have been applied where required, along with the assumptions in Table 12, to inform overall option costs. There are four exceptions to the application of the desk assessment unit rates for our EDWRMP_INV solutions. Higher desk assessment unit rates between £25,000 and £250,000 were applied to the following investigations due to the extent of effort required to complete them: 08ES100103, 08MU100303, 08MU100397 and 08NW104125.

A summary of our EDWRMP_INV costs is included in Section 3.3.3.

4.1.2 For Implementation

To determine a cost for solutions to address our IMP needs, we have used our experience from previous project work and professional judgement. We have done this in cases where similarities in scope exist, for example we have used costing from our AMP7 INVs to inform our AMP8 IMP costs. In the case of the two options to address our EDWRMP_IMP need (08ES100102), we have used our experience with internal resourcing and working with third parties to inform our cost build up. A summary of how we built our costs for EDWRMP_IMP is included in Table 14, along with the assumptions demonstrated in Table 12.

²⁵ Cost varies across the degrees of complexity due to the variation in monitoring (water quality, monitoring etc) that may be required. We assume low complexity involves monitoring 3 sites, medium 6 sites, and high 10 sites.

²⁶ Cost varies across the degrees of complexity due to the variation in modelling (water quality, 3D etc) that may be required.

TABLE 14: SUMMARY OF COSTING METHODOLOGY FOR OPTIONS TO ADDRESS OUR EDWRMP_IMP NEED

Option	Annual Salary (Capex)	Annual Opex	Duration	Oncosts
2 Participate in partnership projects	£47,299.17	£5,275	6 years	30%
3 Engage a third party to represent us in partnerships	£78,861	-	6 years	-

For solution 2, 'participation in partnership projects', we have determined an annual salary (£47,299.17) by first considering a £45k annual salary, and then applying oncosts, and uplifts for risk and uncertainty (Table 12).

For solution 3, 'engage a third party to represent us in partnerships', we have considered an average annual consultancy cost for the same inputs to determine an annual salary of £78,861. This average rate has been based on AMP7 consultancy rates for similar work.

We propose an enhanced spend to address our IMP need, with investment beginning in 2024 (during AMP7) to deliver the need by the end of AMP8. This is why we have a cost duration of 6 years for both options (Table 14).

4.2. COST BENCHMARKING

In developing our enhancement costs for PR24, we have carried our benchmarking in line with the Infrastructure & Projects Authority (IPA) best practice guidance²⁷. The following benchmarking activities have been incorporated into our process to make sure our costs are robust and efficient. Benchmarking activities have included the following, covered in our [Cost Benchmarking Report](#) (NES63):

- pre-benchmarking of our cost models;
- sample project benchmarking;
- econometric benchmarking; and
- peer/supplier benchmarking

Pre-benchmarking of our iMOD cost models was carried out prior to commencement of the cost estimation process for PR24 business cases. Mott MacDonald benchmarked both direct and indirect costs (client and contract overheads) against data from a number of comparatively sized water and wastewater companies to determine our relative position. The conclusion of the pre-benchmarking exercise was that cost estimates generated from the iMOD cost models are in line with industry costs, and therefore the use of iMOD was appropriate for costing our PR24 programme.

²⁷ Best Practice in Benchmarking, Government Project Delivery Framework. www.assets.publishing.service.gov.uk

In addition to pre-benchmarking, a representative range of projects were sampled from selected business cases and bottom-up benchmarking estimates produced from Mott MacDonald's sector database to allow comparison with our iMOD generated project costs. The sample group of projects included 30 from our WINEP programme across Water and Wastewater. The sample project benchmarking exercise concluded that our costs are generally in line with or less than the benchmark data, with an average 13% cost efficiency for projects within the sample group.

For most elements of our WINEP programme, including investigations and implementations, we were not able to make direct comparisons with industry benchmarks due to the lack of equivalent comparator data. For this reason, we defined a standard approach for investigations across our water WINEP programme to categorise investigations by scale and complexity and assign to a banded cost category. This is described in Section 4.1.1. Additionally, we also completed an internal benchmarking exercise to inform the cost of salaries which inform our two options to address our EDWRMP_IMP need. This is outlined in Section 4.1.2.

5. CUSTOMER PROTECTION

- a) Are customers protected (via a price control deliverable or performance commitment) if the investment is cancelled, delayed or reduced in scope?*
- b) Does the protection cover all the benefits proposed to be delivered and funded (eg primary and wider benefits)?*
- c) Does the company provide an explanation for how third-party funding or delivery arrangements will work for relevant investments, including how customers are protected against third-party funding risks?*

5.1. PERFORMANCE COMMITMENTS

Performance commitments (PCs) incentivise water companies to improve performance and maximise outcomes for customers and the environment. Our WINEP programme is set by the Environment Agency, which determines the statutory and non-statutory investments we should make. The Environment Agency assures that WINEP actions are delivered to the agreed timeframe, and environmental obligations are met. As such, there are no performance commitments that will make sure our customers are protected through delivery of our WINEP programme. The individual projects within this enhancement case are mostly investigations, with the only "improvement" project providing improved planning – so there are no wider benefits reflected in performance commitments either.

Therefore, in Section 5.2 we propose a Price Control Deliverable to ensure protection for customers.

5.2. PRICE CONTROL DELIVERABLE

Our approach to determining Price Control Deliverables (PCD) is outlined in Section 12.3 of [A3 – Costs](#) (NES04). In Table 15 below, we assess our EDWRMP enhancements to test if the benefits are linked to PCs, against Ofwat's materiality of 1%, and to understand if there are outcome measures that can be used. Our assessment has highlighted that the benefits

we expect to deliver through our AMP8 WINEP programme will not be measured through PCs. Therefore, we propose a PCD to ensure protection for customers through delivery of our WINEP programme.

TABLE 15: ASSESSMENT OF BENEFITS AGAINST THE PCD CRITERIA

Enhancement scheme	Benefits linked to PC?	Materiality	Possible outcomes?
Water WINEP – long-term environmental destination (NES17)	Pass – benefits are environmental or investigations	Fail – 0.1%	Outcome difficult to measure effectively; and varies between schemes (particularly investigations). Customers could be protected through an output measure based on delivery of schemes.

Our WINEP programme is set by the Environment Agency, which determines the statutory and non-statutory investments we should make. The Environment Agency assures that WINEP actions are delivered to the agreed timeframe, and environmental obligations are met. We therefore propose a PCD that makes sure that costs are returned to customers either where the Environment Agency has decided that a project is no longer required, or where we have not delivered to the agreed timeframe and/or environmental obligations have not been met (according to the Environment Agency). A summary of our PCD for WINEP programme delivery is outlined in Table 16.

TABLE 16: SUMMARY OF THE PRICE CONTROL DELIVERABLE FOR OUR WINEP PROGRAMME DELIVERY TO PROTECT CUSTOMERS

Description of price control deliverable	Delivery of WINEP projects as specified in our WINEP enhancement cases (NES17, NES18, NES19, NES28, NES29, NES30, NES31, NES34).
Measurement and reporting	We will report on the delivery of WINEP projects at the next price review (PR29), including specifying the individual projects that have been delivered, not delivered, or that the Environment Agency has decided are no longer required (under the Environment Agency’s WINEP alterations process). This is in addition to the WINEP guidance which specifies how we will need to report progress against delivery of the WINEP actions and tracking and reporting WINEP delivery in a transparent and auditable manner.
Conditions on scheme	Projects must be delivered to the specification agreed with the Environment Agency under WINEP.
Assurance	The Environment Agency will confirm that WINEP actions have been delivered to the agreed timeframe, and that environmental obligations have been met. As set out in the WINEP guidance , there will be regular liaison between water companies and the Environment Agency to discuss progress, risks and issues associated with delivery of the WINEP programme and to identify any alterations. The Environment Agency uses the WINEP measures sign-off, technical review and audit guidance for assurance that the environmental obligations as set out in the WINEP are completed as planned.
Price control deliverable payment rate	We will return funds back to customers for individual projects, as specified in Table 11 above (for NES17) – seven individual schemes to be delivered by the dates specified.
Impact on performance in relation to performance commitments	None (for long-term environmental destination projects in NES17).

We propose a single PCD for most of our WINEP programme delivery (with the exception of storm overflows). This should:

- Be set according to **individual project costs**, rather than a “per project” unit cost. This is because these costs vary considerably, and a single rate would create an incentive to deliver more of the cheapest projects (at the expense of more expensive projects). Ofwat’s guidance in IN23/05 identifies this incentive and expects us to set out scheme level deliverables where costs vary significantly across schemes (so our approach here is consistent with the guidance). If we did not aggregate WINEP schemes, there would be no PCD covering NES17 because this would not be material on its own.
- **Not include an automatic penalty for non-delivery** (beyond returning the costs to customers). This is because this PCD includes projects where the EA has decided these are no longer required, which should not lead to a penalty. If we did not deliver a project that is required (and where we had not agreed a change with the Environment Agency), we would not meet our statutory obligations and so this does not require an extra incentive to deliver.
- **Change according to the Environment Agency’s WINEP alterations process**. In 2020-25, our ODI for WINEP delivery does not automatically take into account projects that are removed from WINEP by the Environment Agency – but this should be for the Environment Agency to determine. Costs should be returned to customers for projects that are not required, without further interventions needed from Ofwat.

This is an aggregated PCD across all our WINEP schemes except for storm overflows. We chose to aggregate these PCDs because most of our WINEP enhancement cases or projects would not be individually material, and these share the same reporting, assurance, and conditions.